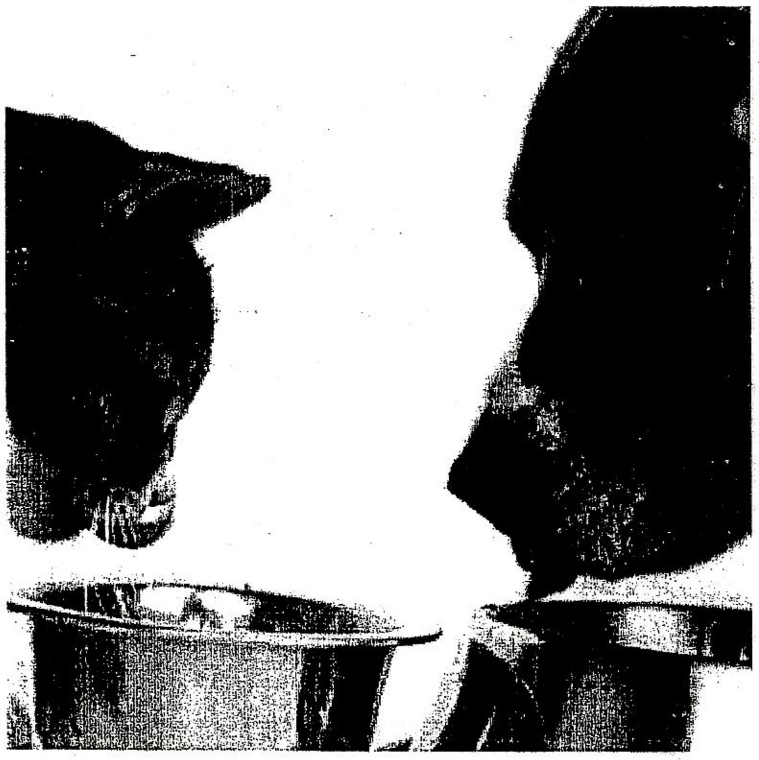
Practical Animal Nutrition



المسائل

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(Formulation of ration for dairy cows)

- Formulate a balanced ration for lactating cow 600 kg body weight and produce 30 kg milk of 3% fat %.

Nutrient requirements of dairy cattle

B.Wt (Kg)	Daily feed intake (Kg)	CP (g)	ME (Mcal)	Ca (g)	P (g)
Maintenance of mature cows					
400	5.5	373	11.90	15	13
500	6.5	432	14.06	18	15
600	7.5	489	16.12	21	17
Nutrients per Kg milk					
Fat%					
3		77	1.07	2.5	1.7
4		87	1.24	2.7	1.8
5		98	1.39	2.8	1.9

Feed composition table

feed	ME.Kcal (poultry)	DE. Kcal (rabbit)	ME. Mcal (cattle)	CP%	CF %	Ca %	P %
Y. corn	3350	3500	3.1	9	2.2	0.02	0.25
SBM	2250	3160	2.75	40	6	0.27	0.6
CSM	2200	2900	2.65	35	15	0.19	1.04
Fish meal	3190	-	-	70	-	4.80	2.60
W. bran	1300	3100	2.3	15	11	0.12	1.36
Berseem	-	-	0.50	3.5	4.5	0.25	0.04
B. hay	-	1760	1.91	15	28	1.10	0.2
W. straw	-	1200	1.36	3	40	0.17	0.08
Molasses	2250	2440	-	4	-	-	-
Fat	7000	8000	-	-	-	-	-
Limestone	-	-	-	-	-	36	-
Dical. ph	-	-	-	-	-	24	18

① 1) Determination of nutrient requirement

a) requirement for maintenance

b) requirement for milk production (lactation)

Requirement	CP	ME	Ca	P
a) Maintenance	0.489 kg	16.12 Mcal	0.021 kg	0.017 kg
b) lactation	$\frac{30 \times 77}{1000}$ = 2.31 kg	30 × 1.07 = 32.1 Mcal	$\frac{30 \times 2.5}{1000}$ = 0.075 kg	$\frac{30 \times 1.7}{1000}$ = 0.051 kg
Total requirement	2.799	48.22	0.096	0.068

← ملحوظة) كل النسب اللي طلعت هنحولها من gm إلى Kg بالقسمة على 1000 ماعدا الطاقة

② Daily feed intake (Air dried feed)

تختلف نسبة الـ D.M intake على حسب الإنتاج ... يعني ;

- . very high producing >30 kg milk → 4% of body weight (D.M intake)
- ✓ . High (21 - 30 kg Milk) → 3.5% of body weight
- . Medium (11 - 20 kg Milk) → 3.0% of body weight
- . low (10 or less) → 2.5% of body weight

$\therefore$ D.M intake = $600 \times \frac{3.5}{100} = 21.0$ kg

amount of air dried feed intake = $21.0 \times \boxed{\frac{100}{90}} = 23.3$ kg

③ Determination of roughage to concentrate ratio

← أيضاً على حسب الإنتاج

- . very high producing → R : C 40 : 60
- ✓ . High producing animal → 40 : 60
- . Medium producing → 45 : 55
- . low producing → 50 : 50

Roughage = $23.3 \times \frac{40}{100} = 9.32$ kg

Concentrate = $23.3 \times \frac{60}{100} = 13.98$ kg

④ Roughage / Concentrate selection

Roughage Selection:
- in winter: Barseem : Straw = 4 : 1
- in summer: Green corn : straw = 4 : 1

← هنا إحنا في الشتاء فهنختار البرسيم والقش

Straw = $\frac{9.32}{5}$ = 1.87 kg

Barseem = 9.32 − 1.87 = 7.45 kg

↓ on fresh basis

7.45 × 5 = 37.25 kg

← في حالة لو استخدمت green corn إضرب 4X

	CP	ME	Ca	P
Barseem (37.25 Kg)	$\frac{37.25 \times 3.5}{100}$ = 1.30	37.25 × 0.5 = 18.625 M.Cal	$\frac{37.25 \times 0.25}{100}$ = 0.0931	$\frac{37.25 \times 0.04}{100}$ = 0.0149
Straw (1.87 Kg)	$\frac{1.87 \times 3}{100}$ = 0.0561	1.87 × 1.36 = 2.543	$\frac{1.87 \times 0.17}{100}$ = 0.003179	$\frac{1.87 \times 0.08}{100}$ = 0.001496
req. from roughage بالعليقة	1.3561 kg	21.168 M.cal	0.096279 Kg	0.016396 kg
← بالطرح من الخطوة الأولى				
req. from Concentrate	1.443	27.05	—	0.052

← لاحظ: عند حساب الـ nutrient req. بنقسم على ١٠٠ عشان موجودة في الجدول بالـ (%)

• Concentrate Selection by Net Energy Method

← هنبدأ باستخدام yellow corn (كمصدر للطاقة بالعليقة)

1- amount of Y.corn = $\frac{\text{الطاقة المطلوبة}}{\text{الطاقة الموجودة بالجدول}}$ = $\frac{27.05}{3.1}$ = 8.726 kg

↙ هيغطوا كل احتياجاتنا من الطاقة بس هل هيحقق كل احتياجاتنا من البروتين؟

2- amount of cp present in 8.726 kg Y.corn = $\frac{8.726 \times 9}{100}$ = 0.785 kg

3- remaining part of CP = 1.443 - 0.735 = 0.658 kg

So we must use source of protein and replace part of Y.corn with C.S.M

4- amount of C.S.M that replace Y.corn = البروتين المطلوب / (البروتين ن CSC - البروتين ن Y.corn)

$$= \frac{1.443}{0.35-0.9} = 2.53 \text{ Kg C.S.M}$$

كده دي كمية الـ C.S.M اللي هنستخدمها
و هنطرحها من كل كمية Y.corn اللي من الأول

5- amount of Y.corn = 8.726 - 2.53 = 6.196 Kg

	CP	ME
∴ Y.corn (6.196 Kg)	$\frac{6.196 \times 9}{100}$	6.196 X 3.1
C.S.M (2.53 Kg)	$\frac{2.53 \times 35}{100}$	2.53 X 2.65
Total	= 1.443 ✓	25.9121 (قليلة)

6- remaining part of energy = 27.05 - 25.9121 = 1.1376 M.cal

∴ amount of Y.corn needed = الطاقة المطلوبة / الطاقة بالجدول $= \frac{1.1376}{3.1}$

= 0.367 Kg Y.corn

∴ Total Y.corn = 0.367 + 6.196 = 6.563 Kg.

	CP	ME	P
Y.corn (6.563 kg)	$\frac{6.563 \times 9}{100}$	6.563 X 3.1	$\frac{6.563 \times 0.25}{100}$
C.S.M (2.53 kg)	$\frac{2.53 \times 35}{100}$	2.53 X 2.65	$\frac{2.53 \times 1.04}{100}$
Total	1.47 ✓	27.05 ✓	0.039 (قليل)

∴ amount of P needed = 0.052 - 0.039

= 0.013 kg

we use Na dibasic phosphate contain 24% P

or dicaphosphate contain 18% P

100 → 18
? → 0.013

amount of dicaphosphate = $\frac{100 \times 0.013}{18}$ = 0.07 kg

So, animal need

Barseem → 37.25 kg

Straw → 1.87 kg

Y. corn → 6.563 kg

C.S.M → 2.53 kg

di Ca phosphate → 0.07 kg

(Formulation of ration of finishing steer)

- Formulate a balanced ration of steer calves, its body weight 300 kg, daily gain 0.9 kg?

Table 2. Nutrient Requirements for Growing-Finishing Steer Calves and Yearling (nutrient concentration in diet dry matter).

weight kg	Daily Gain kg	Daily Feed kg	Roughage %	Total Protein %	TDN %	ME Mcal/kg	NE_m Mcal/kg	NE_g Mcal/kg	Ca %	P %
100	0.0	2.1	100	8.7	55	2.0	-	-	0.18	0.18
	0.7	2.7	50-60	14.8	70	2.5	1.6	1.0	0.70	0.48
	1.1	2.7	<15	18.2	86	3.1	2.07	1.37	1.04	0.70
150	0.0	2.8	100	8.7	55	2.0	1.17	-	0.18	0.18
	0.70	3.9	50-60	12.6	70	2.5	1.6	1.0	0.46	0.36
	1.1	3.7	<15	15.6	86	3.1	2.07	1.37	0.76	0.54
200	0.0	3.5	100	8.5	55	2.0	1.17	-	0.18	0.18
	0.7	5.7	70-80	10.8	64	2.3	1.4	0.78	0.32	0.28
	1.1	4.6	<15	13.6	86	3.1	2.07	1.37	0.59	0.43
250	0.0	4.1	100	8.5	55	2.0	1.17	-	0.18	0.18
	0.9	6.2	45-50	11.1	72	2.6	1.64	1.02	0.35	0.31
	1.3	6.0	<15	12.7	86	3.1	2.07	1.37	0.50	0.38
300	0.0	4.7	100	8.6	55	2.0	1.17	-	0.18	0.18
	0.9	8.1	55-65	10.	70	2.5	1.56	0.95	0.27	0.23
	1.3	7.1	<15	11.7	83	3.0	1.98	1.31	0.41	0.32
350	0.0	5.3	100	8.5	55	2.0	1.17	-	0.18	0.18
	0.9	8.0	45-55	10.0	72	2.6	1.64	1.02	0.25	0.22
	1.3	8.0	<15	10.8	83	3.0	1.98	1.31	0.32	0.28
400	0.0	5.9	100	8.5	55	2.0	1.17	-	0.18	0.18
	1.0	9.4	45-55	9.4	72	2.6	1.64	1.02	0.22	0.21
	1.3	8.6	<15	10.4	86	3.1	2.07	1.37	0.29	0.26
450	0.0	6.4	100	8.5	55	2.0	1.17	-	0.18	0.18
	1.0	10.3	45-55	9.3	72	2.6	1.64	1.02	0.19	0.19
	1.3	9.3	<15	10.4	86	3.1	2.07	1.31	0.26	0.25

1- Nutrient req. من الجدول

2- Daily feed intake (Air dried feed)

$8.0\ Kg \times \frac{100}{90} = 8.89\ Kg$

$CP = \frac{8.89 \times 10.8}{100} = 0.96\ kg$

$ME = 8.89 \times 3 = 26.67$ cal

$Ca = \frac{8.89 \times 0.32}{100} = 0.0254\ kg$

$P = \frac{8.89 \times 0.25}{100} = 0.025\ kg$

3) Roughage / Concentrate ratio

Roughage < 15% (10-14%)

لأنه لا يمكن أن تقل نسبة الـ R عن 10%

$$Roughage = 8.89 \times \frac{10}{100} = 0.889 \text{ Kg}$$

$$Concentrate = 8.89 \times \frac{90}{100} = 8.001 \text{ Kg}$$

4) Roughage / Concentrate Selection

Roughage ← يفضل أن يكون كل roughage Straw

Nutrient Content of Straw

$$CP = \frac{0.889 \times 3}{100}$$

$$ME = 0.889 \times 1.36 =$$

$$Ca = \frac{0.889 \times 0.17}{100} =$$

$$P = \frac{0.889 \times 0.08}{100}$$

Concentrate → (Y.corn, C.S.M.)

↓

By Net Energy Method

ونكمل زي المسألة اللي فاتت

Formulation of ration for broilers

Requirement for broilers

	Starter	Grower	Finisher
Age	0_2 weeks	2.5 _ 5 w	5_7 w
Cp%	21_23	20	18
ME	3200 Kcal	3200 Kcal	3200 Kcal
Ca%	1	0.9	0.8
available P%	0.45	0.4	0.35
Total P%	0.7	0.6	0.6
lysine %	1.1	1	0.85
Methionine%	0.5	0.35	0.32

Ingredients that are used for broiler chicken

1- yellow corn 50-70%
2- SBM 20-30%
3- Fish meal 3-7% (3% especially in finisher)
4- Fat meal 6-8%
5- premix 3-4 kg

• 1 Ration is made per 100 kg [3kg premix & 97 kg for the other nutrients]

Feed Composition table for poultry

	CP%	ME	Ca%	P%	Methionine%	lysine%
Y. corn	9	3350	0.02	0.28	0.2	0.24
SBM	44	2230	0.29	0.65	0.65	2.93
wheat bran	15.7	1300	0.24	1.15	0.17	0.59
herring fish (Fish meal)	72	3190	2.29	1.7	2.1	5.7
Corn gluten	62	3720	0	0.5	1.91	1
Oil (fat meal)	0	7500	0	0	0	0

Q. Formulate a broiler chickens diet containing 20% CP, 3100 Kcal/kg ME

(Answer)

- Nutrient requirement

CP 20% ME 3200 Kcal/kg من الجدول Ca 0.9% P 0.4%

lysine 1% Methionine 0.35%

كتابة فقط

← نحول من % الى kg

CP → 20 kg لأن العليقة ١٠٠ kg

ME → 320.000 P → 0.4 kg

Ca → 0.9 kg

lysine → 1 kg Methionine 0.35 kg

By equation method

Premix → 3 kg Ingredients → 97%

المفروض نعمل معادلة من ٤ مجاهيل (مكونات العليقة) و دي صعبة علشان كده هنثبت قيمة واحد منهم و نعمل معادلة من ٣ مجاهيل

- Yellow corn SBM Fat Fish (6)

	CP	ME	Ca	P
Fish meal	$\frac{6 \times 72}{100}$	6×3190	$\frac{6 \times 2.29}{100}$	$\frac{6 \times 1.7}{100}$
	= 4.32 kg	= 19140	0.14 kg	0.012 kg

Remain part

CP = 20 - 4.32 = 15.68 ME = 320.000 - 19140 = 3008.60

Ca = 0.9 - 0.14 = 0.76 P = 0.4 - 0.012 = 0.388

أول معادلة إسمها معادلة الكمية

① $Y + S + F = 91$ → بنطرح 3 kg premix، 6 kg fish meal

تاني معادلة إسمها معادلة البروتين

② $0.09\,Y + 0.44\,S + 0\,F = 15.68$

تالت معادلة إسمها معادلة الطاقة

③ $3350\,Y + 2230\,S + 7500\,F = 300860$

← بنضرب المعادلة ① في 7500 ونطرحها مع المعادلة ③ علشان نحذف قيمة F

$$7500\,Y + 7500\,S + 7500\,F = 682500$$

$$3350\,Y + 2230 + 7500\,F = 300860$$

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④ $4150\,Y + 5270\,S = 381640$

← نحل المعادلة الجديدة مع المعادلة ② على أساس إن المعادلة ② قيمة F تساوي ⓪ نهترم

④ $4150\,Y + 5270\,S = 381640$

② $0.09\,Y + 0.44\,S = 15.68$

بنضرب المعادلة ② في $\frac{4150}{0.09}$ علشان نوحد قيمة Y في المعادلتين

$$4150\,Y + 5270\,S = 381640$$

$$4150\,Y + 20288.8\,S = 723022.05$$

$$15018.8\,S = 341382.05$$

$$S = 22.73$$

بالتعويض في المعادلة ② علشان نجيب قيمة Y

$$0.09\,Y + (22.73 \times 0.44) = 15.68$$

$$Y = 63.24$$

بالتعويض في معادلة (٢) علشان نجيب قيمة (F)

S + F + Y = 91

22.73 + 63.24 + F = 91

F = 5.06

نضبط الـ Ca و P

	Ca	P
Y. Corn	$\frac{63.24 \times 0.02}{100}$	$\frac{63.24 \times 0.28}{100}$
SBM	$\frac{22.73 \times 0.29}{100}$	$\frac{22.73 \times 0.65}{100}$
Fish meal	$\frac{6 \times 2.29}{100}$	$\frac{6 \times 1.7}{100}$
Fat	0	0
Total	0.8	0.43
	قليل	مضبوط

Remain part of Ca = 0.9 - 0.8 = 0.1 kg

$CaCO_3$ (calcium carbonate) contain 36% Ca

100 → 36

?? → 0.1

$CaCO_3 = \frac{0.1 \times 100}{36} = 0.28$ kg

The animal need.

Y. Corn → 63.24 kg

SBM → 22.73 kg

Fish → 6 kg

Fat → 6 kg

Premix (3 kg) containing 0.28 kg $CaCO_3$

Formulation of ration for Layers

Requirement for layers مهم

	Starter	Grower	Grower (2)	laying diet
Age	0-6 w	6-12 w	12-18 w	> 18 w
CP %	18	15	14	16-17
ME	2900 Kcal/kg	2900	2900	2850
Ca %	0.9-1	0.9-1	0.9-1	2.75-3.5 (3)
available P %	0.35-0.45 (0.4)	0.4	0.4	0.7
linolinic acid %	1	1	1	1.2
lysine %	0.85	0.6	0.45	0.52
Methionine %	0.3	0.25	0.2	0.22

Ration is made per 100 kg (10 kg premix + 90 kg other nutrients)

Ingredients: مهم

Y. corn (50-70 %) SBM 20-30 % Oil 6-8 %

Fish meal (3-7 %)
wheat bran 10-20 %

Q. Formulate a balanced diet for a laying hen?

1. Nutrient requirement

CP 17 % ME 2850 Kcal Ca 3 % P 0.7 %

Lysine 0.52 % Methionine 0.22 % linolinic acid 1.2 %

كتابة فقط

← نحولها إلى kg

CP 17 kg ME 285000 Kcal/kg

Ca 3 kg P 0.7 kg

B) equation method

Premix → 10 kg Ingredients → 90 kg

نعمل معادلة من ٣ مجهول (نشت Fish, wheatbran)

	CP	ME
Fish meal (3)	$\frac{3 \times 72}{100}$	3×3490
wheat bran (10)	$\frac{10 \times 15}{100}$	10×1300
Total	3.66	22570

Remain part:

CP = 17 − 3.66 = 13.34 kg ME = 285000 − 22570 = 262430 Kcal

اول معادلة معادلة الكمية

$Y + S + F = 77$

ثاني معادلة ـــ البروتين

$0.09\,Y + 0.44\,S + 0\,F = 13.34$

ثالث معادلة ـــ الطاقة

$3350\,Y + 2230\,S + 7500\,F = 262430$

ثم نكمل مثل الـ broiler بالضبط

Formulate a balanced ration for lactating rabbit C.P 16-18 %, CF 10-12%, DE 2600-2800 K.cal/Kg

Feed composition table

feed	ME.Kcal (poultry)	DE. Kcal (rabbit)	ME. Mcal (cattle)	CP%	CF %	Ca %	P %
Y. corn	3350	3500	3.1	9	2.2	0.02	0.25
SBM	2250	3160	2.75	40	6	0.27	0.6
CSM	2200	2900	2.65	35	15	0.19	1.04
Fish meal	3190	-	-	70	-	4.80	2.60
W. bran	1300	3100	2.3	15	11	0.12	1.36
Berseem	-	-	0.50	3.5	4.5	0.25	0.04
B. hay	-	1760	1.91	15	28	1.10	0.2
W. straw	-	1200	1.36	3	40	0.17	0.08
Molasses	2250	2440	-	4	-	-	-
Fat	7000	8000	-	-	-	-	-
Limestone	-	-	-	-	-	36	-
Dical. ph	-	-	-	-	-	24	18

Ration = 100

premix = 4-5 Kg   Ingredients = 95 Kg

Nutrient requirement

$$C.P = \frac{95 \times 17}{100} = 16.15 \text{ kg}$$

$$CF = \frac{95 \times 11}{100} = 10.45 \text{ kg}$$

$$DE = 95 \times 2700 = 256500 \text{ Kcal}$$

Ingredients

Yellow corn	20-30%
W. bran	20-30%
SBM	15-30%
B. hay	20-35%
Straw	5-10%
Molasses	3-5%

By trial, error method

1st Trial

Y.corn 24%
w.bran 22%
SBM 17%
B.hay 22%
Straw 7%
Molasses 3%

	CP	DE	CF
Y.corn	$\frac{24\times9}{100}$	24×3500	$\frac{24\times2.2}{100}$
w.bran	$\frac{22\times15}{100}$	22×3100	$\frac{22\times11}{100}$
SBM	$\frac{17\times40}{100}$	17×3160	$\frac{17\times6}{100}$
B.hay	$\frac{22\times15}{100}$	22×1760	$\frac{22\times28}{100}$
Straw	$\frac{7\times3}{100}$	7×1200	$\frac{7\times40}{100}$
Molasses	$\frac{3\times4}{100}$	3×2440	—
Total	15.89	260360	12.928
	قليلة	✓	✓

2nd Trial

Yellow Corn 24%

W. bran 22%

SBM 21%

B. hay 20%

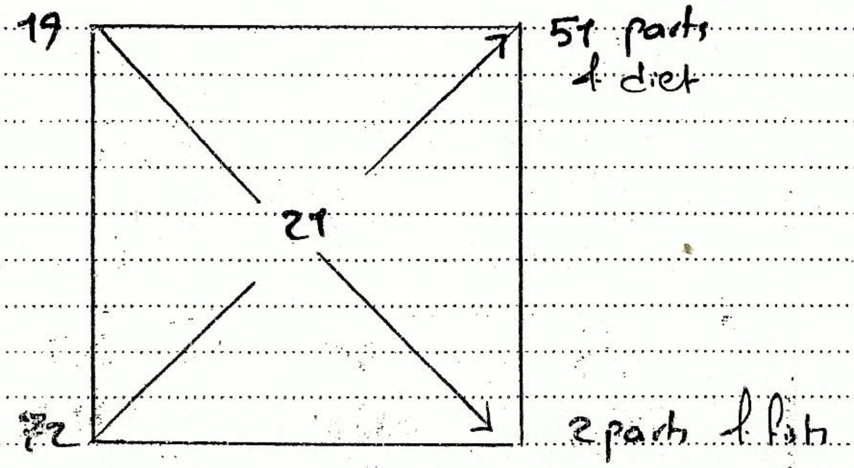
Straw 5%

Molasses 3%

	CP	DE	CF
Y. corn	2.16	84000	0.528
W. bran	3.3	68200	2.42
SBM	$\frac{21 \times 40}{100}$	21X3160	$\frac{21 \times 6}{100}$
B. hay	$\frac{20 \times 15}{100}$	20X1760	$\frac{20 \times 28}{100}$
Straw	$\frac{5 \times 3}{100}$	5X1200	$\frac{5 \times 40}{100}$
Molasses	0.12	7320	—
Total	17.13	263480	11.808

✓ ✓ ✓

Q. Correct or calculate the needed amount of fish meal (72% protein) to correct a diet containing 19% CP → 21% CP using square method



- كمية البروتين المطلوبة بنص المربع (21%)
- أعلى المربع شمال ← كمية البروتين اللى فى العليقة (19%)
- أسفل المربع شمال ← كمية البروتين فى المادة الغذائية (72%)
- تطرح فى اتجاه السهم دون النظر للإشارة

$$\% \text{ of fish} = \frac{2}{52+2} \times 100 = 3.7\%$$

(مجموع الرتب بعد الطرح)

$$\% \text{ of diet} = \frac{51}{51+2} \times 100 = 96.3\%$$

Page :

حل أول شيت 2013 Date : May 26, 2011 الشيت التغذية

I- Write on 2 of the following

[1] Compare bet. low & good quality

low quality (straw)	high quality (hay)
- Consist of mature stems and leaves of plants after removal of ripe seeds.	- made from the same of these plants as straw but before they have matured.
- Very low in CP, fat but contain high amount of CF	- high in CP than straw
- low in TDN	- more palatable than straw
less palatable than hay	
CP% [3]	CP% [14]
ME Kcal/kg 1.36	ME Kcal/kg 1.92
Ca% 0.16	Ca% 1.26
P% 0.08	P% 0.2
CF% [40]	CF% [28]

[2] Nutritional factors to be considered in balancing ration.

① availability of feed stuffs → eg berseem is available only in winter

② suitability of feed stuff → some feed stuff are available to some spp. but not suitable to other spp.

- linseed meal → suitable to Ru.
- Roughage → ess. to Ru. but not suitable to poultry
- Yellow corn → suitable to all classes of animals

Page :

Date :

③ Palatability → ration must be Palatable

④ variety of feed stuff → which ↑ Palatability and balance the ration eg → cereal grains is def. in Ca and most of ess. a.a So, we should add protein supp. as SBM or fishmeal

⑤ Bulkness

- Ruminant A → consume bulker feed more than monogastric
- younger animal less bulky than adult

⑥ mineral matter

- NaCl → 0.5 - 1% is important
- IF Ca, P is low → lead to bone deformation rickets and Pica
- IF low in mn → lead to Perosis

⑦ digestive disturbance - Bloat, colic, diahrea and constipation

eg → colic in horse → avoided by lessened lush or new beans

⑧ Poisonous Plant and Feeds

* C.S.C → cause gossypol
  - Sheep → resistant
  - Rabbit → more sucsiptable
* linseed → contain linamarin

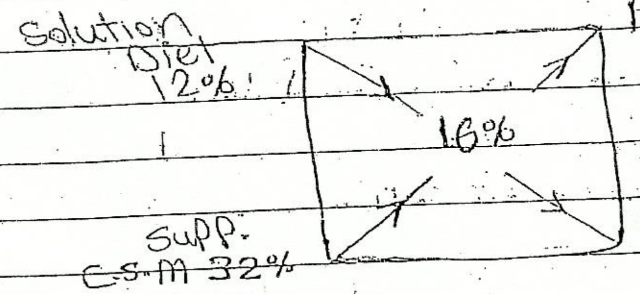
⑨ cost of ration

↳ must contain all requirements but in least cost

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[3] Square method



Part of diet
= 32 − 16 = 16

مع تجاهل الإشارات

Part = 12 − 16 = [4]

Total = 20

% of C.S.M = $\frac{4 \times 100}{20}$ = 20 %

% of diet = $\frac{16 \times 100}{20}$ = 80 %

المجموع
100 %

II – [1] B.wt = 500 kg , daily milk = 30 Kg , Fat = 4%

① determination of nutrient req.

CP (g)	ME (mcal)
432	14.10

Nutrient per Kg of milk acc. to fat %

87	1.25

milk = 30 Kg ↓ ×30

	2610	37.5
Total	3042	51.6

→ ÷1000

= 3.04 (CP) 51.6 (ME) → Total nutrient req.

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(2) determination of amount airdried Feed

milk → 30 kg → so it high producing A

↳ 3.5% BWt

amount of air dried Feed =

$\frac{500 \times 3.5}{100} = 17.5$ kg

100 → 3.5

500 → ?

(3) determination of roughage and concentrate ration (R/C)

R : C

40 : 60

amount of R = $\frac{40 \times 17.5}{100} = 7$ kg

amount of C = 17.5 − 7 = 10.5 kg

*Selection

Trail & error method or (Net energy method (equation method)

الاوضاع (?) [illegible]

R → 7 Kg → berseem hay

C → 10.5 Kg

(*الهدف تسدي الصنف اللازم أحتياجاتنا

ونختار ال nutrient

الموجودة في المسين)

(Net energy method)

	CP	ME
Berseem hay	15 X 7 = 1.05	7 X 1.9 = 13.3
Total req. From R	1.05	13.3
Total req. بالطن	3.04	51.6
Nut. req. From C	1.99	38.3

(Equation method)

X → C.S.C   Y → yellow corn

X + Y = 1.99 معادلة CP   X + Y = 38.3 معادلة ME

CP of → CSC = 36%   ME of → CSC → 2.65

↳ yellow corn = 9%   ↳ y. corn → 3.2

Protein equation = 0.36 X + 0.09 Y = 1.99 → ①

= 2.65 X + 3.2 Y = 38.3 → ②

Energy

$\frac{2.65}{0.36} = 7.36$ → نضرب الناتج في رقم ①

0.36 X X 7.36 + 0.09 Y X 7.36 = 1.99 X 7.36

2.65 X + 0.66 Y = 14.64 → ③

نطرح رقم ③ من رقم ②

2.65 X + 0.66 Y = 14.64

2.65 X + 3.2 Y = 38.3

2.54 Y = 23.66

Y (Yellow corn) = 9.31

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$0.36X + 0.09 \times 9.31 = 1.99$

$0.36X + 0.83 = 1.99$

$0.36X = 1.15$

$X (C\text{-}S\text{-}C) = 3.19$

	CP	ME
Yellowcorn	$\frac{9.31 \times 9}{100} =$ 0.83	$9.31 \times 3.2 = 29.79$
C-S-C	$3.19 \times 36 =$ 1.15	$3.19 \times 2.65 = 8.45$
Total	1.98 ✓	38.24 ✓
amount of nut. From conc	1.99	38.3

Feed stuff	amount
Berseemhay	7 Kg
Yellowcorn	9.31 Kg
C-S-C	2.52 kg
Nacl	0.5%

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2- CP → 23% & ME = 320000

starter → Ca 1% & P 0.45%

- supp → 3 kg
- rest → 97 kg
  - Yellowcorn → 55 kg
  - SBM → 30 kg
  - Fishmeal → 7 kg
  - Oil → 5 kg

Feed stuff	CP	ME
Yellow corn	$\frac{55 \times 9}{100}$ = 4.95	55 × 3350 = 184250
SBM	$\frac{30 \times 44}{100}$ = 13.2	30 × 2500 = 75000
Fishmeal	$\frac{7 \times 70}{100}$ = 4.9	7 × 3000 = 21000
Oil	—	5 × 7800 = 39000
Total	23.05 ✓	319250 ✓
بالمقارنة	23%	320000

so Poultry need →

- yellow corn 55%
- SBM 30%
- Fishmeal 7%
- Oil 5%
- supplement 3%

Abo Ali

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